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	<b>Filing Date</b>	April 13, 2001	
	<b>First Named Inventor</b>	Shujin Zhang	
	<b>Art Unit</b>	2181	
	<b>Examiner Name</b>	Patel, Niketa I.	
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**ENCLOSURES (check all that apply)**

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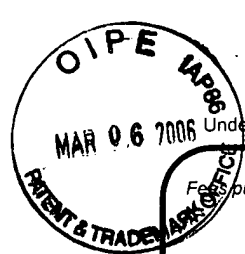
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<b>Date</b>	March 3, 2006	<b>Reg. No.</b>	38,745

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# FEE TRANSMITTAL for FY 2006

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) \$500.00

## Complete if Known

Application Number	09/835,164
Filing Date	April 13, 2001
First Named Inventor	Shujin Zhang et al.
Examiner Name	Patel, Niketa I.
Art Unit	2182
Attorney Docket No.	CISCO-3840 (032590-141)

## METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify) : \_\_\_\_\_

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## FEE CALCULATION

### 1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee(\$)	Fee(\$)	Small Entity Fee(\$)	Fee(\$)	Small Entity Fee(\$)	
Utility	300	150	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	160	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	_____

### 2. EXCESS CLAIM FEES

#### Fee Description

Each claim over 20 (including Reissues)

Fee (\$)	Small Entity Fee (\$)
50	25

Each independent claim over 3 (including Reissues)

200	100
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Multiple dependent claims

360	180
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#### Total Claims

#### Extra Claims

#### Fee(\$)

#### Fee Paid (\$)

#### Multiple Dependent Claims

\_\_\_\_\_ -20 or HP= \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

Fee (\$)	Fee Paid (\$)
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HP = highest number of total claims paid for, if greater than 20.

#### Indep. Claims

#### Extra Claims

#### Fee(\$)

#### Fee Paid (\$)

\_\_\_\_\_ - 3 or HP= \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of independent claims paid for, if greater than 3.

### 3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
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#### Fees Paid (\$)

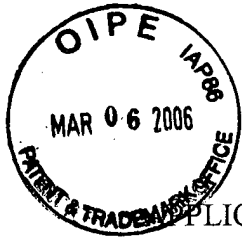
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Signature		Registration No. (Attorney/Agent)	38,745	Telephone	408-292-5800
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PATENT  
CISCO-3840

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Shujin Zhang et al.  
SERIAL NO.: 09/835,164 CONFIRMATION NO. 4870  
FILING DATE: April 13, 2001  
TITLE: DYNAMIC HOST CONFIGURATION PROTOCOL PROXY  
EXAMINER: Patel, Niketa I.  
TELEPHONE: (571) 272-4156  
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ART UNIT: 2182

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**APPEAL BRIEF**

Dear Sir:

This paper is in support of a Notice to Appeal from the Office Action dated November 2, 2005 to the Board of Patent Appeals and Interferences. Please consider the following.

03/07/2006 MBIZUNES 00000125 09835164

01 FC:1401 500.00 OP

Void date: 03/07/2006 MBIZUNES  
03/07/2006 MBIZUNES 00000125 09835164  
01 FC:1401 500.00 OP

03/07/2006 MBIZUNES 00000127 09835164

01 FC:1402 500.00 OP

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**REAL PARTY IN INTEREST**

The real Party in interest is **Cisco Technology, Inc.**

**RELATED APPEAL AND INTERFERENCES**

None.

## **STATUS OF CLAIMS**

Claims 53-94 have been finally rejected and are being appealed.

## **STATUS OF AMENDMENTS**

No amendments after final have been filed.



## **SUMMARY OF CLAIMED SUBJECT MATTER**

The invention relates to a method and apparatus for issuing or renewing a host address in a network that uses DHCP (Dynamic Host Configuration Protocol). Conventionally, as seen from FIG. 1 of the drawings, issuing or renewing host addresses in a DHCP network was conducted automatically, in a closed interaction between host devices (10a-10N) and address allocation devices (16a-16N). However, this closed approach precluded manual intervention by a network administrator, who in some instances needed to gain access to the process for any number or reasons, including defining, managing or controlling host address allocation, or implementing host address allocation policies.

In order to allow manual intervention, the invention interjects a DHCP proxy 40 (FIG. 4) between the host devices (10a-10N) and address allocation devices (16a-16N). The DHCP proxy 40 operates to reconfigure some communication packets exchanged by the host devices (10a-10N) and address allocation devices (16a-16N) so that these communication packets will pass through the DHCP proxy during the exchange. Among the types of packets that are reconfigurable by the DHCP proxy are Discovery, Offer, Request, and Acknowledgement packets, all of which are described in the specification with reference to FIG. 3. By reconfiguring the packets so that they pass through the DHCP proxy 40, the network administrator gains control over the communication between the host devices and the address allocation devices through control of the DHCP proxy. Such control enables the network administrator to for example define, manage or control host address allocation, or implement host address allocation policies.

Claim 53 in particular is directed to one method (see FIG. 4), which is nominally performed by a device such as DHCP proxy 40, for handling a request for a network allocation address, for example from a host such as host device 10a-10N. In claim 53, a host identifier, for example a MAC address, is retrieved (Step 62 in FIG. 6) from the request, typically from the ciaddr 24 field (FIG. 2) of the request packet, and is matched (Step 64) with a list of host identifiers, stored for example in a memory 56. If a match is found, the host is maintained in a state of authentication (Step 72). A proxy address (that is, the address of DHCP proxy 40 in this example) is stored (Step 74) in a relay agent field (giaddr 26 in FIG. 2) in the request, and, if the request is from an authenticated host, the request is sent (Step 80) to an address allocation device such as device 16a-16N. A response is received (Step 82) from the address allocation device (e.g., 16a-16N), and a value in the server identifier field (siaddr 22) of the response is modified (Step 76) to match the proxy address (DHCP proxy 40 in this example). The response is sent to the host (e.g., 10a-10N) in Step 84.

Claim 60 is directed to a method for handling a DHCP discovery packet, which method is explained with reference to FIG. 6. According to claim 60, a host identifier is retrieved from the discovery packet (Step 62 in FIG. 6). The host identifier can be a MAC address, password, source address, user name or similar identifies, as explained in page 9, line 16. The host identifier is matched with a list of host identifiers (Step 64), and, if a match is found, the associated host (e.g., 10a-10N) is maintained in a state of authentication (Step 72). Otherwise, the host is maintained in a state inauthentication (Step 70). A proxy address—for example, DHCP proxy 40—is inserted in a gateway IP address (GIADDR) field in the discover packet (Step 74), and, if the host is in the authenticated state, the discovery packet is transmitted to an

address allocation device such as device 16a-16N (Step 80). A DHCP offer packet is received from the address allocation device (Step 82) and a value in a server identifier address (SIADDR) field in the offer packet is modified to match the proxy address (Step 76). The offer packet is transmitted (e.g., 10a-10N) in Step 84.

Claim 67 is directed to an apparatus, for example DHCP proxy 40, for handling a request for a network address allocation. An example of such an apparatus is described with reference to FIGS. 5A and 5B in the specification. Claim 67 recites various modules for performing functions set forth in the claim. Such modules are consistent with software and/or hardware implementations of the inventive procedures involved. Claim 67 recites a host identifier retrieving module, whose functionality is described in p. 9, ll. 13-5; a host identifier matching module, which can be in the form of a parser 92 (p. 13, ll. 13-16); a host state maintenance module, whose functionality is described in p. 9, l. 20-p. 10, l. 15; a relay agent address field proxy address insertion module, such as a packet composer 100 (p. 13, ll. 13-16); a request transmission module, described in p. 16, ll. 10-11; an address allocation device (e.g., 16a-16N) response receiving module configured to receive a response from said address allocation device, whose functionality is described in p. 16, ll. 14-15; a server identifier field proxy address insertion module, such as packet composer 100 (p. 13, ll. 13-16); and a response transmission module, whose functionality is described in p. 16, ll. 14-16 and 20-22.

Claim 74 is directed to an apparatus, for example DHCP proxy 40, for handling a DHCP discovery packet, an example of which is also described with reference to FIGS. 5A and 5B. Claim 74 recites a host identifier retrieving module, whose functionality is described in p. 9, ll.

13-15; a host identifier matching module, which can be in the form of a parser 92 (p. 13, ll. 13-16); a host state maintenance module, whose functionality is described in p. 9, l. 20-p. 10, l. 15; a GIADDR field proxy address insertion module, such as a packet composer 100 (p. 13, ll. 13-16); a DHCP discovery packet transmission module coupled to the GIADDR field proxy insertion module, described in p. 16, ll. 10-11; an address allocation device (e.g., 16a-16N) DHCP offer packet receiving module, whose functionality is described in p. 16, ll. 14-15; an SIADDR field proxy address insertion module, such as packet composer 100 (p. 13, ll. 13-16); and a DHCP offer packet transmission module, whose functionality is described in p. 16, ll. 14-16 and 20-22.

Claim 81 is a means-plus-function claim under 35 U.S.C. 112, sixth paragraph. It relates to an apparatus, such as DHCP proxy 40, for handling a request for a network address allocation and recites various means, which may be hardware and/or software in nature, for performing functions that loosely correspond to those of the modules of claim 67. Claim 81 includes means for retrieving a host identifier from the request, which loosely corresponds to the host identifier retrieving module of claim 67, whose functionality is described in p. 9, ll. 13-5; means for matching the host identifier with a list of host identifiers, corresponding to parser 92 (p. 13, ll. 13-16); means for maintaining a state of authentication, loosely corresponding to the host state maintenance module of claim 67, whose functionality is described in p. 9, l. 20-p. 10, l. 15; means for inserting a proxy address in a relay agent address field in the request, corresponding to packet composer 100 (p. 13, ll. 13-16); means for transmitting the request to an address allocation device, loosely corresponding to the request transmission module of claim 67 and described in p. 16, ll. 10-11; means for receiving a response from the address allocation device (e.g., 16a-16N), loosely corresponding to the address allocation device response receiving

module of claim 67, whose functionality is described in p. 16, ll. 14-15; means for modifying a value in a server identifier field in the response to match the proxy address, corresponding to packet composer 100 (p. 13, ll. 13-16); and means for transmitting the response to the host associated with said host identifier, loosely corresponding to the response transmission module of claim 67, whose functionality is described in p. 16, ll. 14-16 and 20-22.

Claim 88 is directed to an apparatus, such as DHCP proxy 40, for handling a DHCP discovery packet and recites various means, which may be hardware and/or software in nature, for performing functions that loosely correspond to those of the modules of claim 74. Claim 88 includes means for retrieving a host identifier from the DHCP discovery packet, which loosely corresponds to the host identifier retrieving module of claim 74, whose functionality is described in p. 9, ll. 13-15; means for matching the host identifier with a list of host identifiers, corresponding to parser 92 (p. 13, ll. 13-16); means for maintaining a state of authentication for a host associated with the host identifier if a match is found, loosely corresponding to the host state maintenance module of claim 74, whose functionality is described in p. 9, l. 20-p. 10, l. 15; means for inserting a proxy address in a gateway IP address (GIADDR) field in the DHCP discovery packet, corresponding to the GIADDR field proxy address insertion module of claim 74, such as a packet composer 100 (p. 13, ll. 13-16); means for transmitting the DHCP discovery packet to an address allocation device to issue or renew a host address if the host associated with the host identifier is in a state of authentication, loosely corresponding to the DHCP discovery packet transmission module of claim 74, described in p. 16, ll. 10-11; means for receiving a DHCP offer packet from the address allocation device, corresponding to the address allocation device (e.g., 16a-16N) DHCP offer packet receiving module of claim 74, whose functionality is

described in p. 16, ll. 14-15; means for modifying a value in a server identifier address (SIADDR) field in the DHCP offer packet to match the proxy address, loosely corresponding to the SIADDR field proxy address insertion module of claim 74, such as packet composer 100 (p. 13, ll. 13-16); and means for transmitting the DHCP offer packet to the host associated with the host identifier, loosely corresponding to the DHCP offer packet transmission module of claim 74, whose functionality is described in p. 16, ll. 14-16 and 20-22.

## **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Whether claims 53-57, 60-64, 67-71, 74-78, 81-85 and 88-92 are unpatentable under 35 U.S.C. § 102(e) over Beser (U.S. Pat. No. 6,189,102, hereinafter, "Beser").

Whether claims 58, 65, 72, 79, 86 and 93 are unpatentable under 35 U.S.C. § 103(a) over Beser.

Whether claims 59, 66, 73, 80, 87 and 94 are unpatentable under 35 U.S.C. § 103(a) over Beser in view of Michael Patrick, "DHCP Relay Agent Information Option," Motorola ISG, July 30, 1997 (hereinafter, "Michael").

## ARGUMENT

### I. Whether claims 53-57, 60-64, 67-71, 74-78, 81-85 and 88-92 are unpatentable under 35 U.S.C. § 102(e) over Beser.

#### A. Claims 53-57, 67-71 and 81-85

Claim 53, from which claims 54-57 depend, recites, *inter alia*,

receiving a response from said address allocation device;  
modifying a value in a server identifier field in said response to  
match said proxy address

The Final Office Action points to Table 4 of Beser as allegedly showing the second of these limitations—modifying a value in a server identifier field in said response to match said proxy address. Table 4 describes the conventional structure of the various DHCP packets, including the request packet, and illustrates that the content of the SIADDR field in such packets is the address of the next server to use. The values in Table 4 relate to the initial settings of the fields as they are conventionally configured. It does not describe modification of these settings, and more importantly, their modification in a received response. And even though Table 4 indicates that the SIADDR field is applicable in the DHCPOFFER, DHCPACK and DHCPNAK packets, which may be considered responses to a request, Table 4 does not disclose modification of the SIADDR field; it only describes the value of that field as it is initially set in the request, and as it is subsequently used, unchanged, in the DHCPOFFER, DHCPACK and DHCPNAK packets. Beser thus fails to disclose all the limitations of Claim 53, and of claims 54-57 dependent therefrom, and the 35 U.S.C. 102(e) rejection based on Beser should be withdrawn.



With respect to claim 67, from which claims 68-71 depend, it is respectfully submitted that substantially the same arguments applied to claim 53 are equally applicable to claim 67 because claim 67 recites various modules configured to perform functions similar to those recited in method claim 53. For instance, claim 67 recites, *inter alia*,

- a relay agent address field proxy address insertion module configured to insert a proxy address in a relay agent address field in the request;

- a request transmission module coupled to said relay agent field proxy address insertion module and configured to transmit said request to an address allocation device to issue or renew a host address if said host associated with said host identifier is in a state of authentication;

- an address allocation device response receiving module configured to receive a response from said address allocation device;

- a server identifier field proxy address insertion module coupled to said address allocation device response receiving module and configured to modify a value in a server identifier field in said response to match said proxy address; and

- a response transmission module coupled to said server identifier field proxy address insertion module and configured to transmit said response to said host associated with said host identifier.

As discussed above, these features are not disclosed in Beser, and applicant respectfully urges that Beser therefore fails to anticipate claim 67, and claims 68-71 dependent therefrom.

Withdrawal of the 35 U.S.C. 102(e) rejection of claims 67-71 based on Beser is respectfully urged.

Claim 81, from which claims 82-85 depend, is a means-plus-function claim under 35 U.S.C. 112, sixth paragraph. The arguments applied to claims 53 and 67 above are equally

applicable to claim 81, and the rejection under 35 U.S.C. 102(e) based on Beser of claim 81 and claims 82-85 dependent thereon, should be withdrawn for at least the same reasons.

B. Claims 60-64, 74-78 and 88-92

Claim 60, from which claims 61-64 depend, requires, *inter alia*, inserting a proxy address in the GIADDR field of the discovery packet, transmitting the discovery packet to an address allocation device, receiving an offer packet from the address allocation device, and modifying the SIADDR field in the offer packet to match the proxy address. For the “inserting a proxy address in the GIADDR field of the discovery packet” limitation, the Office Action points to several passages (col. 24, ll. 10-20 29-44 and 51-63; and col. 26, ll. 36-50) in Beser to which this limitation is equated. For the “modifying the SIADDR field in the offer packet to match the proxy address” limitation, the Office Action again points to Table 4, and also to col. 18, ll. 7-48. However, as explained above, Table 4 merely sets forth the conventional structure of the various DHCP packets and illustrates that the content of the SIADDR field in such packets is the address of the next server to use. The values in Table 4 relate to the initial settings of the fields as they are conventionally configured. It does not describe modification of these settings, and, in this case, their modification an offer packet. In fact Table 4 expressly indicates states that the SIADDR field, as it is initially set, is applicable to the in the DHCPOFFER, DHCPACK and DHCPNAK packets. In the other passage to which the Office Action points—that is, col. 18, ll. 7-48—Beser discloses (in Table 7) that the SIADDR 128 field is set to the “IP 54 address for a TFTP 64 server to download configuration information for interface host.” TFTP 64, as the paragraph bridging columns 6 and 7 explains, is the “file transfer protocol used to download files and configuration information.” This comports with conventional practice, in which this field is

populated with the value of the next sever to use. Importantly, it does not comport with the language of claim 60, which requires modification of the SIADDR field to match the address of a proxy, which in any case Beser fails to disclose. Beser thus fails to disclose all the limitations of Claim 60, and of claims 61-64 dependent therefrom, and the 35 U.S.C. 102(e) rejection based on Beser should be withdrawn.

Similarly, withdrawal of the 35 U.S.C. 102(e) rejection based on Beser of claim 74, from which claims 75-78 depend, is respectfully requested. The arguments above with respect to claim 60 are equally applicable to claim 74 since claim 74 is directed to various modules structured to perform functions similar to those recited in claim 60 and which, as per the discussion above, are absent from Beser.

Similarly, withdrawal of the 35 U.S.C. 102(e) rejection based on Beser of claim 88, from which claims 89-92 depend, is respectfully requested. The arguments above with respect to claims 60 and 74 are equally applicable to claim 88 since claim 88 is a means-plus-function claim whose limitations are similar to those of claims 74 and 88 and are similarly absent from Beser.

**II. Whether claims 58, 65, 72, 79, 86 and 93 are unpatentable under 35 U.S.C. § 103(a) over Beser.**

Claims 58, 65, 72, 79, 86 and 93 are dependent claims whose limitations include those of the base claims discussed above. Accordingly, Applicant respectfully submits that claims 58, 65,

72, 79, 86 and 93 are allowable for at least the same reasons, and withdrawal of their rejection under 35 U.S.C. § 103(a) based on Beser is urged.

**III. Whether claims 59, 66, 73, 80, 87 and 94 are unpatentable under 35 U.S.C. § 103(a) over Beser in view of Michael**

Claims 59, 66, 73, 80, 87 and 94 are dependent claims whose limitations include those of the base claims discussed above. Michael fails to remedy the absence from Beser of the discussed limitations. In particular, Michael fails to show or suggest “inserting a proxy address in a relay agent address field in the request; . . . modifying a value in a server identifier field in said response to match said proxy address” (claim 53); “inserting a proxy address in a gateway IP address (GIADDR) field in the DHCP discovery packet; . . . modifying a value in a server identifier address (SIADDR) field in said DHCP offer packet to match said proxy address” (claim 60); “a relay agent address field proxy address insertion module configured to insert a proxy address in a relay agent address field in the request; . . . a server identifier field proxy address insertion module . . . configured to modify a value in a server identifier field in said response to match said proxy address” (claim 67); “a GIADDR field proxy address insertion module configured to insert a proxy address in a gateway IP address (GIADDR) field in the DHCP discovery packet; . . . an SIADDR field proxy address insertion module . . . configured to modify a value in a server identifier address (SIADDR) field in said DHCP offer packet to match said proxy address” (claim 74); “means for inserting a proxy address in a relay agent address field in the request; . . . means for modifying a value in a server identifier field in said response to match said proxy address” (claim 81); and “means for inserting a proxy address in a gateway

IP address (GIADDR) field in the DHCP discovery packet; . . . means for modifying a value in a server identifier address (SIADDR) field in said DHCP offer packet to match said proxy address” (claim 88). For these reasons at least, Applicant respectfully submits that claims 59, 66, 73, 80, 87 and 94 are patentably distinct over the combination of Beser and Micael and withdrawal of the 35 U.S.C. 103(a) rejection based on same is respectfully urged.

## **CLAIMS APPENDIX**

53. A method for handling a request for a network address allocation, the method comprising:
- retrieving a host identifier from the request;
  - matching said host identifier with a list of host identifiers;
  - maintaining a state of authentication for a host associated with said host identifier if a match is found;
  - inserting a proxy address in a relay agent address field in the request;
  - transmitting said request to an address allocation device to issue or renew a host address if said host associated with said host identifier is in a state of authentication;
  - receiving a response from said address allocation device;
  - modifying a value in a server identifier field in said response to match said proxy address; and
  - transmitting said response to said host associated with said host identifier.
54. The method of claim 53, wherein said host identifier is a MAC address.
55. The method of claim 53, further comprising storing said list of host identifiers in a memory.
56. The method of claim 53, further comprising pairing said list of host identifiers with a host information list.

57. The method of claim 53, further comprising discarding the request if said host associated with said host identifier is not in a state of authentication.
58. The method of claim 53, further comprising querying an accounting device to obtain account information for said host associated with said host identifier.
59. The method of claim 53, wherein said inserting a proxy address in a relay agent address field further comprises flagging an option 82 option in the request.
60. A method for handling a DHCP discovery packet, the method comprising:  
retrieving a host identifier from the DHCP discovery packet;  
matching said host identifier with a list of host identifiers;  
maintaining a state of authentication for a host associated with said host identifier if a match is found;  
inserting a proxy address in a gateway IP address (GIADDR) field in the DHCP discovery packet;  
transmitting the DHCP discovery packet to an address allocation device to issue or renew a host address if said host associated with said host identifier is in a state of authentication;  
receiving a DHCP offer packet from said address allocation device;  
modifying a value in a server identifier address (SIADDR) field in said DHCP offer packet to match said proxy address; and  
transmitting said DHCP offer packet to said host associated with said host identifier.

61. The method of claim 60, wherein said host identifier is a MAC address.
62. The method of claim 60, further comprising storing said list of host identifiers in a memory.
63. The method of claim 60, further comprising pairing said list of host identifiers with a host information list.
64. The method of claim 60, further comprising discarding the DHCP discovery packet if said host associated with said host identifier is not in a state of authentication.
65. The method of claim 60, further comprising querying an accounting device to obtain account information for said host associated with said host identifier.
66. The method of claim 60, wherein said inserting a proxy address in a gateway IP address (GIADDR) field further comprises flagging an option 82 option in the request.
67. An apparatus for handling a request for a network address allocation, the apparatus comprising:  
a host identifier retrieving module configured to retrieve a host identifier from the request;



a host identifier matching module coupled to said host identifier retrieving module and configured to match said host identifier with a list of host identifiers;

a host state maintenance module coupled to said host identifier matching module and configured to maintain a state of authentication for a host associated with said host identifier if a match is found;

a relay agent address field proxy address insertion module configured to insert a proxy address in a relay agent address field in the request;

a request transmission module coupled to said relay agent field proxy address insertion module and configured to transmit said request to an address allocation device to issue or renew a host address if said host associated with said host identifier is in a state of authentication;

an address allocation device response receiving module configured to receive a response from said address allocation device;

a server identifier field proxy address insertion module coupled to said address allocation device response receiving module and configured to modify a value in a server identifier field in said response to match said proxy address; and

a response transmission module coupled to said server identifier field proxy address insertion module and configured to transmit said response to said host associated with said host identifier.

68. The apparatus of claim 67, wherein said host identifier is a MAC address.

69. The apparatus of claim 67, further comprising a memory configured to store said list of host identifiers.

70. The apparatus of claim 67, further comprising a host identifier list pairing module configured to pair said list of host identifiers with a host information list.

71. The apparatus of claim 67, further comprising a request discarding module configured to discard the request if said host associated with said host identifier is not in a state of authentication.

72. The apparatus of claim 67, further comprising an accounting device querying module configured to query an accounting device to obtain account information for said host associated with said host identifier.

73. The apparatus of claim 67, wherein said relay agent address field proxy address insertion module is further configured to flag an option 82 option in the request.

74. An apparatus for handling a DHCP discovery packet, the apparatus comprising:  
a host identifier retrieving module configured to retrieve a host identifier from the DHCP discovery packet;  
a host identifier matching module coupled to said host identifier retrieving module and configured to match said host identifier with a list of host identifiers;  
a host state maintenance module coupled to said host identifier matching module and configured to maintain a state of authentication for a host associated with said host identifier if a match is found;

a GIADDR field proxy address insertion module configured to insert a proxy address in a gateway IP address (GIADDR) field in the DHCP discovery packet;

a DHCP discovery packet transmission module coupled to said GIADDR field proxy insertion module and configured to transmit the DHCP discovery packet to an address allocation device to issue or renew a host address if said host associated with said host identifier is in a state of authentication;

an address allocation device DHCP offer packet receiving module configured to receive a DHCP offer packet from said address allocation device;

an SIADDR field proxy address insertion module coupled to said address allocation device DHCP offer packet receiving module and configured to modify a value in a server identifier address (SIADDR) field in said DHCP offer packet to match said proxy address; and

a DHCP offer packet transmission module coupled to said SIADDR field proxy address insertion module and configured to transmit said DHCP offer packet to said host associated with said host identifier.

75. The apparatus of claim 74, wherein said host identifier is a MAC address.

76. The apparatus of claim 74, further comprising a memory configured to store said list of host identifiers.

77. The apparatus of claim 74, further comprising a host identifier list pairing module configured to pair said list of host identifiers with a host information list.

78. The apparatus of claim 74, further comprising a request discarding module configured to discard the request if said host associated with said host identifier is not in a state of authentication.

79. The apparatus of claim 74, further comprising an accounting device querying module configured to query an accounting device to obtain account information for said host associated with said host identifier.

80. The apparatus of claim 74, wherein said relay agent address field proxy address insertion module is further configured to flag an option 82 option in the request.

81. An apparatus for handling a request for a network address allocation, the apparatus comprising:

- means for retrieving a host identifier from the request;

- means for matching said host identifier with a list of host identifiers;

- means for maintaining a state of authentication for a host associated with said host identifier if a match is found;

- means for inserting a proxy address in a relay agent address field in the request;

- means for transmitting said request to an address allocation device to issue or renew a host address if said host associated with said host identifier is in a state of authentication;

- means for receiving a response from said address allocation device;

- means for modifying a value in a server identifier field in said response to match said proxy address; and

means for transmitting said response to said host associated with said host identifier.

82. The apparatus of claim 81, wherein said host identifier is a MAC address.

83. The apparatus of claim 81, further comprising means for storing said list of host identifiers in a memory.

84. The apparatus of claim 81, further comprising means for pairing said list of host identifiers with a host information list.

85. The apparatus of claim 81, further comprising means for discarding the request if said host associated with said host identifier is not in a state of authentication.

86. The apparatus of claim 81, further comprising means for querying an accounting device to obtain account information for said host associated with said host identifier.

87. The apparatus of claim 81, wherein said means for inserting a proxy address in a relay agent address field further comprises means for flagging an option 82 option in the request.

88. An apparatus for handling a DHCP discovery packet, the apparatus comprising:  
means for retrieving a host identifier from the DHCP discovery packet;  
means for matching said host identifier with a list of host identifiers;

means for maintaining a state of authentication for a host associated with said host identifier if a match is found;

means for inserting a proxy address in a gateway IP address (GIADDR) field in the DHCP discovery packet;

means for transmitting the DHCP discovery packet to an address allocation device to issue or renew a host address if said host associated with said host identifier is in a state of authentication;

means for receiving a DHCP offer packet from said address allocation device;

means for modifying a value in a server identifier address (SIADDR) field in said DHCP offer packet to match said proxy address; and

means for transmitting said DHCP offer packet to said host associated with said host identifier.

89. The apparatus of claim 88, wherein said host identifier is a MAC address.

90. The apparatus of claim 88, further comprising means for storing said list of host identifiers in a memory.

91. The apparatus of claim 88, further comprising pairing said list of host identifiers with a host information list.

92. The apparatus of claim 88, further comprising means for discarding the DHCP discovery packet if said host associated with said host identifier is not in a state of authentication.

93. The apparatus of claim 88, further comprising means for querying an accounting device to obtain account information for said host associated with said host identifier.

94. The apparatus of claim 88, wherein said means for inserting a proxy address in a gateway IP address (GIADDR) field further comprises means for flagging an option 82 option in the request.

## **EVIDENCE APPENDIX**

None.



## **RELATED PROCEEDINGS APPENDIX**

None.

Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,

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